

# GAME MACHINE WITH STORY DISPLAY PROVIDING INDICATION OF THE STATE OF THE GAME

## Technical Field

5 This invention relates to game machines, such as a pachinko game machine (a pinball-like game machine of Japanese origin), comprising a display means for displaying game-related designs and control means, such as a microcomputer, for controlling the display.

## Background Art

10 A type of pachinko (a spring-driven steel ball game) game machine has been on the market in which a display means is provided to show a varying display of symbols when specific conditions are met (hereinafter called "special symbols"). An advantage is given to the player if the varying display stops at a specific combination of the special symbols. In recent years, many electrical display devices, such as liquid crystal display devices, have  
15 been used to show various production (dramatic) displays.

20 The greatest concern of the player is whether the varying display stops at a special game state, a big-hit (jackpot), a combination of special symbols favorable for the player. The combination of special symbols is, for example, a set of three identical special symbols like "7-7-7." Therefore, the player has to watch the special symbols shown as varying display very carefully.

However, since the display of special symbols occurs at a high speed, the player is actually visually tracing nearly invisible designs. Also, until the special symbols appear, the process is monotonous, not fun at all, and the player is bored. As the player visually traces the special symbols moving at high speed, the player may suffer eyestrain.

25 In recent years, arrangements for enhancing the fun of playing such games have been put on the market. In one arrangement, a display is made separately from the ordinary display of the varying special symbols when a condition referred to as a Reach state occurs. Reach (pre-jackpot) is a term borrowed from the Japanese version of the game mah-jongg in which only one more event will produce a winning condition, a jackpot. In the games employing a  
30 Reach state, only one more special symbol is needed for a jackpot to be reached. In a Reach

state the player can feel that the time of a jackpot is near. In another arrangement, the Reach display is presented through a story. However, the player must still visually trace the special symbols moving at high speed until the Reach state is attained.

5 In still another arrangement, a production display includes character designs before attaining the Reach state.

In such an arrangement, for example, in addition to display of special symbols for determining the occurrence of a special game state using a special varying display device, an animated image of a character playing golf is displayed, and the displayed result of the animated image corresponds to the displayed result of the special symbols. For example,  
10 during the varying display of the special symbols, an animated image is displayed in which a character performs a series of golf tee shots. If the ball enters the hole, a jackpot symbol is displayed and, if not, a miss symbol is displayed. In this animated image, the common story of golf is used for different games, and the game to be displayed is switched according to how many times the special symbols started.

15 Still another arrangement of conventional technique is known. While a game is going on with a varying display of special symbols, a preliminary varying display game is played, interlocked with a main varying display game. In the preliminary varying display game, an ornamental display is made in which a stop symbol is extracted when the character design drives out a special symbol for the varying display.

20 In still another conventional technique, animated image information synchronized with the varying display of the special symbol display device is displayed on an image display device. The animated image shows, for example, the story of an angler, from the dropping of a fishing line to the landing a fish, corresponding to the states of jackpot, Reach, and miss. Specific designs, such as an octopus, a shark, etc., corresponding to the special symbols  
25 defined as the stop symbols of the special symbol display device appear while the varying display continues with the special symbol display.

In still another arrangement, to enhance the player's feeling of expectation, the magnitude of the probability of development of the Reach state is indicated with characters and their combinations that appear during the varying display, and the jackpot probability is indicated  
30 while the Reach demonstration is being displayed.

With the conventional technique described, however, the story shown with the animated image differs only with regard to the image corresponding to the finally stopped result of the special symbols, and the story during the varying display remains the same. Therefore, the development of the story can be easily predicted and the player becomes bored after a time.

5 From another viewpoint, the displayed contents of the animated image (showing a golf ball missing a hole) are the same whether a miss results from a Reach state or not from a Reach state. Therefore, if the player watches the animated image only, the game comes to an end without the player learning whether a Reach state has been attained. That is, after all, in order for the player to learn the game state, the player cannot turn his eyes from the  
10 monotonously varying display of special symbols.

Even if plural kinds of animated images are used for the same story, since a monotonous pattern is repeated, the player gets bored.

According to the another conventional arrangement, since the preliminary variable display game using the character designs is interlocked with the variable display game, the  
15 player still cannot turn the eyes from the monotonous varying display.

According to the still another conventional arrangement, the animated image information is expressed in close correlation to the special symbols. Namely, the stopped designs are expressed with character designs, such as an octopus or a shark, to reveal the state of the game. Therefore, it is necessary, every time the varying display stops, to check the stopped  
20 result after watching the display of the animated image information. No change can be seen in the character design (the angler) before a Reach state is attained, which is monotonous. Moreover, when a Reach state is not attained because the special symbols on right and left hand sides are not in agreement, the story expressed with the animated image information does not come to an end. Therefore, the player cannot grasp the state of the game merely by  
25 watching the animated image information. That is, even if a production display is shown, still the player must watch the special symbols that are displayed.

Furthermore, with a game machine providing the varying display continuously for a long time, such as a game machine changing the winning rate in a jackpot lottery (variable probability machine), the problems of "eyestrain" and "getting bored with monotonous  
30 varying display" become worse. On top of that, since most of the stopped results of the

varying display are misses and most of which do not even achieve a Reach state, in watching the varying display there is much wasted effort.

Some of the production displays include those indicating information that is favorable for the player, such as "Jackpot probability is high." Some of the players enjoy finding such a production display during play. For such players, an explanatory display detracts from the fun of the game even if there is the difficulty in understanding the contents of the production display.

An object of the invention is to provide a game machine allowing a player to learn, reliably, the game development, such as a jackpot, Reach state development, and a miss, even without watching variable-display special symbols, by simply watching production displays.

Another object of the invention is to provide a game machine permitting a player to grasp production contents without depriving the player of the pleasure of finding a specific production display of information beneficial to the player.

#### Disclosure of Invention

A game machine according to one form of the invention comprises a display means (e.g., 3 in Fig.1) for displaying a special symbol (e.g., 50L, 50C, 50R in Fig. 2 and Fig. 27, Fig. 30) indicating shifting to a special game state (e.g., h3 in Fig.4), if a varying display (e.g., 50L, 50C, 50R in Fig. 2) stops at a specific state (e.g., h2 in Fig.4), and also displaying a game-related production display (e.g., 51, 52, 53a, 55a, ... in Fig. 2), and a control means (e.g., 30, 31 in Fig. 17) for determining the stopped result of the varying display and controlling the display of the display means according to the determination, the control means controlling the display means to display a scenario from beginning to end, during the period from the start to the end of the varying display.

A game machine according to one form of the invention indicates, at the end of the scenario whether to shift to a special game state (e.g., j3 in Fig. 5) or not (e.g., j4 in Fig. 5).

A game machine according to one form of the invention controls the display means with the control means (e.g., 30 and 31 in Fig. 17) so that the scenario progresses according to the stop timing of the varying display (e.g., 50L, 50C, 50R in Fig. 2).

A game machine according to one form of the invention controls the display means so that the contents of the scenario progresses, irrespective of the stop timing of the varying display.

5 A game machine according to one form of the invention includes a control means for changing the production display to show the development of the contents of the scenario when the game attains a Reach state (e.g., f in Fig. 3), which causes a shift to a special game state if the varying display stops one more special symbol at a specific stop arrangement.

10 A game machine according to one form of the invention indicates the development of the contents of a scenario by changes in the background (e.g., 3a in Fig. 10 or Fig. 11) shown as a production display.

A game machine according to one form of the invention shows a progress pattern of a scenario with a production display that differs by the type of production designs or combinations of production designs.

15 A game machine according to one form of the invention provides a production display that suggests moving to a special game state according to the type of the production design or to an appended design appended to the production design.

A game machine according to one form of the invention includes, in the display means, a display zone for the production display larger than a display zone for varying display of a special symbol.

20 A game machine according to one form of the invention includes a display means for displaying designs related to the game, and a control means for controlling the display on the display means, the control means producing the process from the beginning to the end of a scenario, and controlling the display means to indicate that the game moves to a special game state when the scenario results in a specified end.

25 A recording medium according to one form of the invention has a recorded game program displaying a production from the beginning to the end of a scenario during a period from the starting to the stopping of a varying display and permitting a player to play a game by displaying a special symbol indicating shifting to a special game state if the varying display stops at a specific state.

30 A game machine according to one form of the invention comprises a display means for

displaying a special symbol indicating shifting to a special game state if a varying display stops at a specific state and game-related designs, including a production design, indicating the probability of shifting to the special game state, the display means providing a suggestion of a relationship between the production design and the probability of shifting to the special game state.

A game machine according to one form of the invention provides, in the suggestion, which of the production designs has a high probability of shifting to the special game state.

A game machine according to one form of the invention shows, in the suggestion, designs identical to the production designs or designs relating to the production designs.

A game machine according to one form of the invention provides the suggestion with an animated image.

A game machine according to one form of the invention shows the suggestion when the game is not being played or when the varying display of the special symbol is not shown.

A recording medium according to one form of the invention has a recorded game program permitting a player to play a game while displaying a special symbol indicating shifting to a special game state if the varying display stops at a specific state, displaying game-related designs including a production design indicating the probability of shifting to a special game state, and providing a suggestion of the relationship between the production design and the probability of shifting of the game state.

According to one form of the invention, the control means controls the display means to display the production of a scenario from its beginning to its end, during the period from the starting to the stopping of the varying display. Therefore, the player can learn the game development, such as a jackpot, a Reach development, a miss after a Reach state, and a miss, without watching the special symbols in the varying display. With such a production display, since the player need not concentrate his attention on the varying display, even when playing a game with varying display for a long period of time, games that do not cause eyestrain or boredom can be provided. Even if most of the games result in misses, the player can play the games with pleasure by watching the evolution of scenario of the production display.

According to one form of the invention, since the end of the scenario of the production display indicates whether the game will shift to a special game state, the player can easily

learn, by simply watching the production display, the final result of the game.

According to one form of the invention, since the contents of the scenario of the production display proceed according to the timing of stopping of the varying display, the player can comprehend the timing of each stopping of the varying display by simply watching the production display.

According to one form of the invention, since the contents of the scenario of the production display proceed irrespective of the timing of the stopping of the varying display, games can evolve with originality, irrespective of the varying display.

According to one form of the invention, since the control means changes the production display so that the contents of the scenario evolve when a Reach state is attained, the player can easily determine when the Reach state has been attained, by simply watching the production display.

According to one form of the invention, since the evolution of the contents of the scenario is indicated by changing of the background of a production display, the player is likely to notice the evolution of the scenario and can easily learn when a change in the game, indicated by the varying display will occur by simply watching the production display.

According to one form of the invention, since the progress pattern of the scenario indicated by the production display varies according to the production designs appearing in the production display or combinations of production designs, the player can predict, to some extent, the ensuing game evolution simply by watching the displayed production designs (for example, character designs) or their combination from the beginning. Additional fun is provided by anticipating the appearance of production designs leading to a scenario evolution favorable to the player.

According to one form of the invention, the production display suggests the shifting to a special game state using the production designs appearing in the production display or using appended designs attached to the production designs. Therefore, the status or final result of the game indicated by the varying display can be expressed in various ways using the production designs or appended designs.

According to one form of the invention, the display means has a display zone for the production display wider than a display zone for the varying display of the special symbols.

Therefore, the player can watch only the production display and enjoy its evolution without being distracted with the varying display.

According to one form of the invention, only the production display from the beginning to the end of a scenario is shown in the display means. Therefore, a previously unknown  
5 game machine makes it possible to learn the occurrence of a jackpot, a miss, or a Reach state without the conventional varying display.

A recording medium according to one form of the invention has a recorded game program displaying the production of a scenario from the beginning to the end, during a period from the starting to the stopping of the varying display, permitting a player to play a game with a  
10 special symbol displayed to indicate shifting to a special game state if the varying display stops at a specific state. Therefore, the recording medium with the game program can be used for example in home game machines. Also, by installing the program from the recording medium on general-purpose computers, general-purpose computers may be used as game machines.

According to one form of the invention, a suggestion of the relationship between the  
15 production design and the probability of shifting to a special game state is displayed. Therefore, the player can find a specific relationship between the production design and the probability of shifting to the special game state by watching the displayed suggestion. That is, the player can play for a long period of time without getting bored and with the pleasure of  
20 finding from the displayed suggestions a specific production design having a high probability of shifting to a special game state and discovering such a specific production design in the versatile production display actually shown.

According to one form of the invention, which of the production designs has a high probability of shifting to the special game state is suggested in a display. Therefore, the  
25 player can easily identify a production design having a high probability of shifting to the special game state.

According to one form of the invention, since a suggestion display is shown with a design that is the same as or related to the production design, the player can directly grasp the relationship between the production design and the probability of shifting to the special  
30 game state.



According to one form of the invention, since a suggestion display is shown with an animated image, a more specific suggestion display is provided and the fun of finding out which is the specific production design having a high probability of shifting to the specific game state is enhanced.

5 According to one form of the invention, if a suggestion display is shown when no game is played or when no varying display of special symbols is shown, for example when a demonstration image is shown, the demonstration image can be utilized for displaying important information related to games rather than being used as a mere demonstration image. When the suggestion display is shown with the demonstration image in this way, the  
10 player can face the game after finding out which of the production designs is the specific one having a high probability of shifting to the special game state, even without understanding the meaning of the production design during the game.

A recording medium according to one form of the invention records a game program which permits a player to play a game by displaying game-related designs, including special  
15 symbols and production designs, as described above, and .showing.shows a suggestion of the relationship between the production design and probability of shifting game state, so that the player can use the program for example in a home game machine to enjoy the same game as in the game machine described above. It is also possible to install the program from the recording medium on a general-purpose personal computer, for example, and utilize the  
20 personal computer as a game machine.

This application is based on Japanese patent applications, No. 11-244279, filed in Japan on August 31, 1999, and No. 11-244280, filed in Japan on August 31, 1999, which are entirely incorporated herein by reference.

This invention will be more completely understood through the following detailed  
25 description. Additional application ranges of this invention will become clearer through the following detailed description. However, specific examples in the detailed explanation are preferable embodiments of the invention cited for the purpose of explanation only. For those skilled in the art, it is apparent that various changes and modifications can be made within the scope and spirit of the invention.

30 The applicant has no intention of presenting to the public any of the described

embodiments. Of the disclosed modifications and alternatives, those that may not be included in what is claimed in words shall be part of the invention under equity. \*

#### Brief Description of Drawings

5        FIG. 1 is a front view of the game board of a pachinko game machine according to an embodiment of the invention.

FIG. 2 shows a flow of a display on the display screen.

FIG. 3 is a continuation from FIG. 2, showing the flow of the display on the display screen.

10       FIG. 4 shows a flow of display on the display screen for a “super love-love Reach (pre-jackpot).”

FIG. 5 shows a flow of display on the display screen for a “direct-to-hotel Reach.”

FIG. 6 shows a flow of display on the display screen for a “date spot Reach.”

FIG. 7 shows a flow of a display on the display screen for a “another guy Reach.”

15       FIG. 8 shows a flow of a display on the display screen while playing a jackpot game.

FIG. 9 shows Reach state development rate, and jackpot probability for every combination of male and female characters.

FIG. 10 shows a scene with a background of “station plaza.”

FIG. 11 shows a scene on the display screen with a background of “seaside park.”

20       FIG. 12 is an overview table of designs representing real intentions.

FIG. 13 is a table of probability and occurrence rates of jackpots for every combination of the real intention designs.

FIG. 14 is a table of good couples.

FIG. 15 shows demonstration images on the display screen.

25       FIG. 16 shows another example of demonstration images on the display screen.

FIG. 17 is a block diagram showing a circuit of a pachinko game machine.

FIG. 18 is a flowchart of a main game control process related to a game played with a liquid crystal display device with a main circuit board.

FIG. 19 is a flowchart of an interrupt process.

30       FIG. 20 is a flowchart of a special symbol game control process.

FIG. 21 is a continuation of FIG. 20.

FIG. 22 is a flow chart of processing performed with a symbol control circuit board.

FIG. 23 is a flow chart of image processing by the symbol control circuit board.

FIG. 24 is a flow chart of production pattern determination processing by a symbol  
5 control circuit board.

FIG. 25 is a table of count value renewal ranges of various types of random number  
counters.

FIG. 26 is a jackpot judgment table.

FIG. 27 is a jackpot symbol determination table.

10 FIG. 28 is a table for determining production groups.

FIG. 29 is a Reach state judgment table.

FIG. 30 is a stop symbol determination table.

FIG. 31 is a production pattern determination table for misses without attaining a Reach  
state.

15 FIG. 32 is a production pattern determination table for misses without attaining a Reach  
state.

FIG. 33 is a production pattern determination table for misses after attaining a Reach  
state.

FIG. 34 is a production pattern determination table for misses after attaining a Reach  
20 state.

FIG. 35 is a production pattern determination table for jackpots.

FIG. 36 is a production pattern determination table for jackpots.

FIG. 37 is table of appearances of male characters.

FIG. 38 is table of appearances of female characters.

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#### Best Mode for Carrying Out the Invention

FIG. 1 is a front view of the game board 10 of the pachinko game machine. A liquid  
crystal display device 3 for displaying designs related to games is placed in about the center  
of the game board 10. The liquid crystal display device 3 provides a varying display of plural  
30 symbols expressed with images to simulate three rows of reels of a slot machine. The

variably displayed symbols are termed “special symbols.” The special symbol, if its varying display stops at a specific stop arrangement (such as a stop arrangement “7-7-7”, which is termed a “big-hit” or a “jackpot”), indicates a shift to a special game state favorable to the player. In the special game state, to be specifically described later, a big prize hole 5, described later, is converted to a favorable state.

The liquid crystal display device 3 also displays various production displays during the varying display of the special symbols. The production display is expressed in various forms of images: An omen, i.e., warning or foretelling, production design representing a “jackpot probability” of shifting to the special game state or a “Reach evolution (or development) probability” of evolving to the Reach state, or a Reach state production design displayed in the Reach state, which may shift to the special game state if one more stop occurs. These omen production designs and Reach state production designs are expressed in various image forms.

In this embodiment, as shown in FIG. 2(a) described later, special symbols with stylized numerical symbols are displayed in the display zones 50L, 50C, and 50R in the upper part of the display screen 3a of the liquid crystal display device 3. The omen production designs and Reach production designs are displayed in the other display zones, production display zones, as game-related production displays. The special symbols are images, expressed with electrical signals, of the symbols on the three rotary reels of a slot machine. The omen production designs and Reach production designs are also displayed with animated pictures and letters as well as with designs. Omen production designs using a male character 51 and a female character 52 with the background of a station plaza are shown in FIG. 2(a). The male character 51 and the female character 52 chat with each other, and change their expressions and physical movements. Evolution from the beginning to the end of a specific scenario is displayed with different situations realized by changing the background. That is, depending on the kind of scenario along which the production display evolves, the ensuing game result varies, and the contents appearing in the course of the production display suggest probabilities of a jackpot and attaining a Reach state.

The omen production design heralds that either the varying display of the special symbol will become a Reach state or the varying display will stop after reaching a Reach state at a

specific state indicating a “jackpot”, such as “7-7-7.” The omen production design changes into various display states.

Therefore, the player can predict to some extent the probability of attaining a Reach state or the appearance of a jackpot thereafter by recognizing which scenario displayed with the omen production design are evolving and by grasping the development of a story.

When a Reach state is attained, the production display is shown with contents of the scenario in the state of having greatly evolved. For example, when male and female (two) characters are placed in a different situation with a different background, the player can easily understand that the scenario has evolved greatly and easily recognize that the game has attained a Reach state. The probability of a jackpot is different according to the extent of evolution of a scenario. Such a production display will be described later in more detail for specific contents of the display.

In this way, in case a Reach state is attained, a Reach state production design separate from the omen production design is displayed as a production display, informing the player of attaining that state. The Reach state production design is shown in the course of the evolving story and its display manner is different according to the jackpot probability.

Again referring to FIG. 1, a startup win hole 4 for a game ball to enter and start the varying display of the special symbols of the liquid crystal display device 3 is provided below the liquid crystal display device 3. The startup win hole 4 comprises a variable prize device convertible to a first state unfavorable for the player and a second state favorable for the player. It is designed so that when a game ball enters the hole 4 and the second state occurs, a specified number of (for example, five) prize balls are dispensed.

The startup win hole 4 has a prize space that can hold a game ball or two, even in the first state unfavorable for the player, and so a ball can enter the hole.

An LED display device 2 having seven segments is located above the liquid crystal display device 3. The LED display device 2 starts a varying display when a game ball passes through passage ball gates 6a and 6b located on the game board 10. When the varying display of the LED display device 2 stops at a predetermined specific state, for example “7,” the startup win hole 4 is converted to the second state that is favorable for the player.

Four LED operation memory lamps 16 are located around the LED display device 2. The

LED operation memory lamps 16 memorize the number of passages, up to four, of game balls through the passage ball gates 6a and 6b and notify the player of the number of variations of the LED display device 2 possible at that time. The memory occurs every time the ball passes. The fifth and later passages are not counted and become invalid.

5 Four startup win memory lamps 15, two for each of right and left sides, are located above the liquid crystal display device 3. The lamps 15 memorize the number of wins, up to a limit of four, with balls entering the startup win hole 4 while the varying display appears on the liquid crystal display device 3, and notify the player of the number of varying displays that can be shown on the liquid crystal display device 3 at that time by turning on the startup win  
10 memory lamps 15. Therefore, when all four lamps 15 are lit, ball entry into the startup win-hole 4 is invalid as a varying display startup condition.

A big win hole (so-called "attacker") 5, convertible to either a closed state disadvantageous to the player or an open state advantageous to the player, is located below the startup win hole 4. The big win hole 5 comprises a variable win device having doors and  
15 convertible to an open state advantageous to the player when the varying display of the special symbols on the liquid crystal display device 3 stops and shows a specific combination of the special symbols, a "jackpot." When a game ball enters the hole 5, a specified number of (for example, 15) prize balls are dispensed.

The special game state permits 16 rounds of a jackpot game with the big win hole 5 open  
20 until 10 balls enter the hole or 30 seconds elapse. However, in order to play a following next round after the first round of jackpot game is over, a specific condition, generally called "V win", must be met.

Here, the big win hole 5 includes plural win holes. The V win is occurs when a game ball enters a specific one of the plural win holes. The specific win hole is usually in the center of  
25 the big win hole 5.

The game board 10 further includes pin wheels 12a and 12b, general win holes 13a, 13b, 13c, 13d, 13e, and 13f for dispensing five prize balls to the player for every entry of a win ball, and board side lamps 14a and 14b.

The contents of display on the display screen 3a are described below using specific  
30 examples.

When a game is started with the liquid crystal display device 3, varying display of specific symbols begins on the display zones 50L, 50C, and 50R of the display screen 3a as shown in FIG. 2(a). At the same time, a production display begins to produce a scenario.

FIG. 2(a) shows the state immediately after the varying display of the specific symbols begins. A production display is shown as follows: A background scene of a station plaza is shown on the display screen 3a. Next, a male character 51 as an omen production design comes into the scene from the left of the display screen 3a, and a female character 52 from the right. As shown in FIG. 2(b), the display changes to show both characters 51 and 52 standing close to each other.

After that, as the scenario evolves, attachment designs attached to the production design are shown. For example, as shown in FIG. 2(c), when the varying display in the left display zone 50L stops, a word design 53a representing the words the male character 51 speaks to the female character 52 and a true (real) intention design 54a, not necessarily in agreement with the contents of the word design 53a, are shown respectively as the attachment designs. Here, the word design 53a of the male character 51 is shown as “You wanna sleep with me, yeah?” and the true intention design 54a shows that the true intention of the male character 51 is almost the same as the contents of the word design 53a.

In succession, as shown in FIG. 2(d), when the varying display in the right display zone 50R stops, a word design 55a representing the words the female character 52 speaks back to the male character 51 and a true intention design 56a are shown respectively as the attachment designs. Here, the word design 55a of the female character 52 is shown as “That’s what I’m gonna say!” and the true intention design 56a shows that the true intention of the female character 52 is almost the same as the content of the word design 55a.

In some cases, the true intention design is different in content from the word design, namely the words do not agree with the true intention. Such a case is shown, for example, in FIG. 2(e) in which the true intention design is 56b when the true intention design 56a is shown. When the word design is in disagreement in contents with the true intention design, the jackpot probability thereafter is low.

Various patterns, as described later for FIGs. 31 to 36, (production pattern determination table) are prearranged for the contents of the word designs. Therefore, for the content of the

word designs shown, conversations of the male and female characters are not necessarily going on smoothly with mutual understanding, namely are not necessarily consistent, as shown in FIG. 2(d). The content of the word designs shows jackpot probability and Reach probability. When the conversation between the male and female characters is consistent, as shown in FIG. 2(d), the jackpot probability and Reach evolution rates are high.

Various patterns are preset to the true intention designs, specifically 20 patterns, H1 to H20, as shown in FIG. 12. In FIG. 2(d), the true intention of the female character 52 is shown with the true intention design 56a (H14 in FIG. 12) indicating that the true intention of the female character is almost the same as the content of the word design 55a. However, if the true intention design H19 of FIG. 12 is shown in FIG. 2(d), it cannot be considered to be in agreement with the content of the word design 55a. In that case, the jackpot probability or Reach evolution rate is low.

However, even if the conversation between the male and female characters is inconsistent, or if the true intention design 56a is inconsistent with the word design 55a in content, a jackpot may occur depending on the scenario evolution. Therefore, the player's attention to the production display is not distracted.

As shown in FIG. 2(d), if a Reach state is reached with the same stop symbols in the right and left display zones 50R and 50L, the contents change according to the evolution of the scenario. However, if the stop symbols in the right and left display zones 50R and 50L are not the same, as shown in FIG. 2(e), a miss results. In the case of a miss, the word design 55b shows a harsh content such as "Go away, bozo!"

As described above, the content of the attachment designs, such as the word design and the true intention design, greatly influence the expectations of the player for a jackpot. Each attachment design is shown simultaneously with the stop time point of the varying display, and in case their contents are consistent, the stop-displayed special symbols also show a Reach state. Namely, the game situation can be accurately grasped by watching only the attachment design display, without paying attention to the special symbols moving at high speeds.

When the game attains a Reach state, the production display changes, after displaying "Reach" as shown in FIG. 3(f), to that of an evolved, completely different state of the



scenario. Therefore, the player not only can easily recognize from the production display the occurrence of a Reach state but also can have enhanced expectations for jackpots to follow.

The scenario evolves roughly in four patterns; “super love-love Reach,” “direct to hotel Reach,” “date spot Reach,” and “another guy Reach.” Although these evolution patterns have different contents, the end of the scenario is whether the male and female characters finally check in the hotel. If the final display indicates that the male and female (two) characters check in the hotel, the game results in a jackpot with the three display zones 50L, 50C, and 50R showing the same designs. If the male and female characters do not check in the hotel, the game results in a miss.

FIG. 4 shows a scenario evolution of the above-mentioned “super love-love Reach.” In this “super love-love Reach” state, many heart symbols are shown in the background, and the scenario evolves that the male and female characters go directly to and check in the hotel. That is, once the game results in this “super love-love Reach” state, the game results in a jackpot with a probability of 100%. After showing a jackpot image of FIG. 4 (h3), the display changes to a jackpot game image.

Referring again to FIG. 3, in case the scenario evolves to a state other than the “super love-love Reach,” there may be a case as shown in FIG. 3(g) in which large letters are shown in the center of the display screen 3(a) after reaching to a Reach state. Here, an expression “I’m gonna make it tonight!” is shown. Various patterns, which correspond to the words before attaining a Reach state as shown in FIGs. 31 to 36 (production pattern determination table), are allocated to these phrases. These phrases represent the player’s zeal or spirit for the future evolution of either of the characters coming into the scene. When these phrases are shown, the jackpot probability is higher than usual and so the player can hope for further evolution of the scenario.

FIG. 5 shows a scenario evolution in the “direct to hotel Reach” case. In this “direct to hotel Reach” case, like in FIG. 4, the scenario evolves that the male and female characters go direct to a hotel. If the characters check into the hotel without any interruption, the game results in a jackpot as shown in Fig. 5 (j3). However, unlike the above case of “super love-love Reach,” they do not necessarily check into the hotel.

For example, in the scene shown in FIG. 5 (j4), if the female character in front of the hotel

expresses the phrase “I’m leaving, then.” and disappears, the game results in a miss. As a matter of course, the special symbols in the stopped state are not the same as each other.

Even in the case a jackpot like FIG. 5 (j3), as the final result of the scenario evolution is to be shown, there may be a case in which the display of FIG. 5 (j5) is shown and the two characters do not smoothly check in the hotel. In that case, the player frets about whether the game will evolve to a jackpot. With such a scenario evolution along with a display causing fretting about the game evolving to a jackpot, the player’s mind is mixed with expectations regarding a jackpot and anxiety about a miss, and so the tension of the player is enhanced.

FIG. 6 shows the scenario evolution of the case of the above “date spot Reach.” In this “date spot Reach” case, various dating spots are shown where the male and female characters 51 and 52 visit. In this FIG. 6, scenes are shown in which the male and female characters 51 and 52 pass in front of a ramen (Chinese noodle) shop (FIG. 6 (k1)), enter a bar (FIG. 6 (k2)), and come out of the bar (FIG. 6 (k3)). The scenario evolution thereafter is the same as that of the “direct to hotel Reach” case shown in FIG. 5.

In FIG. 6, there may be a case in which the words of the female character 52 are shown with “I don’t wanna eat here!” as shown in FIG. 6 (k4). In that case, the game later results in a miss.

FIG. 7 shows the scenario evolution of the above “another guy Reach” case. In this “another guy Reach” case (FIG. 7 (m1)), scenes are shown in which male and female characters 51 and 52 pass in front of various dating spots while another male character 57 comes walking from the opposite direction. After that, if the other male character 57 simply passes by, the display shifts to that of FIG. 5 (j2), namely the above “direct to hotel Reach,” and the game results in a jackpot. That is, in case the other male character 57 simply passes by, it indicates that the jackpot probability is 100%.

However, the female character 52 may say “Sorry. I have a date with that boyfriend.” as shown with the word design 55e in FIG. 7 (m2), and she leaves with the other male character 57 as in FIG. 7(m3). This corresponds to a miss, with the special symbols not in agreement with each other in their stopped state, and the game with this display screen 3a is over.

When a game played with the liquid crystal display 3 results in a jackpot, the game shifts to the special game state during which a display as shown in FIG. 8 begins on the display

screen 3a. In this special game state, as described before, the jackpot game in which the big win hole 5 is converted to a favorable state may be played for up to 16 rounds. Here, the display on the display screen 3a is changed at every turn of the round to notify the player of the turn of the round.

5 For example, in the special game state, a display is made as shown in FIG. 8 (p1) followed by a round display as shown in FIG. 8 (p2) to notify that the first round of the jackpot game is going on. With the round display shown in FIG. 8 (p2), the screen shows an introduction of a female character coming into the scene of a production display.

10 After that, the display changes to introduce each of the other female characters in succession at every turn of the round. The female character introduction screen displays all the female characters except Gloria and Sandra, shown in FIG. 9 (described later), up to the seventh round of the jackpot game.

15 When the game enters the eighth round, the display state of each round displays the female character and her favorite male partner (a male character that makes a best couple later). This round display shows all the female characters, except Gloria and Sandra shown in FIG. 9 (described later), up to the 14th round of the jackpot game.

20 In the 15th round, along with the female character display, a round display with letters is made as "Gotcha, two more rounds to go." In the final 16th round, along with the female character display, a round display with letters is made as "It's the final round, watch out, hold on."

25 Here, FIG. 9 shows the combinations of male and female characters appearing during the production display; and jackpot probability, Reach evolution rate, and appearance rate when the combinations come into the scene during the production display. In the production display of this embodiment, one male character and one female character (two characters) appear as the scenario goes on. As shown in FIG. 9, plural male and female characters (plural types) appear and their combinations (types of couples) are made to represent different Reach evolution rates and jackpot probabilities.

30 In FIG. 9, the male-female combinations indicated with black hearts ((I) to (VII)) are called "the best couples." Their Reach evolution rate is 100%, namely the game evolves to a Reach state with a probability of 100%, and their jackpot probability is 15.182%, which is

higher than other couples in probability of evolving to a jackpot.

Here, the couple appearing in the display examples in the above FIGs. 2 to 8 is the combination of the male character “Bob” and the female character “Cathy” in FIG. 9, which is one of the best couples.

5       The male-female combinations indicated with white hearts are called “normal couples,” with a Reach evolution rate of 18.575%, and a jackpot probability of 0.391%, both lower than those of the best couples.

      The male-female combinations indicated with broken hearts are called “worst couples,” with a Reach evolution rate of 2.002%, namely little probability of evolving to a Reach state,  
10       and a jackpot probability of a very low 0.020%. Here, as seen in FIG. 9, the female characters “Gloria” and “Sandra” are not included in any of the best couples or the normal couples. The best couples and the normal couples are constituted with combinations of seven female characters, other than “Gloria” or “Sandra,” and specific male characters. Therefore, the content of the round display shown during the special game suggests not only the ordinal  
15       number of the round but also the characters constituting the best couples of high probabilities of jackpots.

      Plural backgrounds are preset to the scene where the male and female characters appear. An example of the background is a “station plaza” as shown in FIG. 10, and another is a “seaside park” as shown in FIG. 11. Changing the scene setting by the use of different  
20       backgrounds makes it possible to evolve the scenario according to respective backgrounds, increase the number of variations of the production display, and enhance the fun of the game.

      As shown in FIG. 10 a train design 58 may pass across the background of the scene where the male and female characters appear, or as shown in FIG. 11, a dog design 59 may appear. These are the omen production designs indicating the Reach evolution rate and the jackpot  
25       probability. In this embodiment, the passage of the train design 58 and the appearance of the dog design 59 are very rare. Therefore, if they appear, the jackpot probability is 100%.

      The true intention designs 54a and 56a are arranged to produce different probabilities of jackpot depending on combinations they make. FIG. 12 is an overview table of the true intention designs shown as the production display. FIG. 13 shows combinations of the true  
30       intention designs shown in FIG. 12 and their probabilities of jackpot. As shown in FIG. 13,

when any combination corresponding to the affectionate rank is shown on the production display, the jackpot probability is 2.47%. When any combination corresponding to the date rank is shown on the production display, the jackpot probability is 0.28%. When any combination corresponding to the no-way rank is shown on the production display, the  
5 jackpot probability is 0.07%.

According to FIG. 13, any combination in the affectionate rank or in the date rank is constituted with true intention designs related to each other to some extent. Any combination in the no-way rank is constituted with true intention designs having nothing to do with each other. FIG. 2(d), described before, corresponds to the combination 1 (H14 +  
10 H14) of the affectionate rank with a high probability of jackpot. FIG. 2(e) corresponds to the combination 6 (H14 + H19) of the no-way rank with a low probability of jackpot.

As described above, the production display makes it possible to completely grasp the contents of the game played on the liquid crystal display device 3 by simply watching the scenario evolution shown with the production display. Therefore, there is no need to watch  
15 the special symbols that are displayed and that vary at high speeds.

A pachinko game machine according to an embodiment of the invention is further arranged to show various demonstration displays (hereafter 'demo displays' for short) when no varying display is shown on the liquid crystal display device 3. The demo display not only shows the flow of the entire game played on the liquid crystal display device 3 but also  
20 includes important information related to the game.

This demo display shows a suggestion of the relationship of various production displays appearing during the varying display relative to the Reach evolution rate and the jackpot probability. Specifically, the display shows the omen production designs constituted with the male and female characters, and suggests the presence of a strong relationship between the  
25 omen production designs and the Reach evolution rate and the jackpot probability.

As described above, the omen production design shown with the combination of the male and female characters of the best couple has very high Reach evolution rate and high jackpot rate. Here, the fact that the seven best couples ((I) to (VII) in FIG. 9) have very high probabilities of Reach evolution and jackpot is implicitly indicated by the random display of  
30 the couples during the demo display. That is, the demo display implicitly notifies the player

of important information related to the game.

Therefore, the player, seeing the demo display repeatedly, is impressed with the couple of the characters appearing in the scene. As the player continues playing, the player becomes aware that the impressive couples are high in the Reach evolution rate and the jackpot probability, and can have additional fun of anticipating the appearance of the best couple during the varying display. That is, by notifying the player of the best couple not directly, but implicitly, the additional fun of finding information advantageous to the player is provided and the pleasure of the game is enhanced.

FIG. 14 shows combinations of the male and female characters for the best couples shown in FIG. 9. The best couple (I) is the combination of the male character “Bob” and the female character “Cathy,” the best couple (II) is “Larry” and “Jean,” the best couple (III) is “Alex” and “Mary,” the best couple (IV) is “Ted” and “Ann,” the best couple (V) is “Paul” and “Martha,” the best couple (VI) is “Bruce” and “Cindy,” and the best couple (VII) is “Mark” and “Karen.” These best couples appear randomly in the demo display.

Specific situations of the demo display in which the above best couples ((I) to (VII) in FIG. 9) appear are shown in FIGs. 15-D1 to 15-D4. Here, a scene with a station plaza as a background is displayed on the display screen 3a and the best couples pass right and left across the scene. As shown in this FIG. 15, the content of the display is likely to be overlooked by the players who do not know the meaning of the best couples. However, as the play goes on and the meaning is gradually understood, the contents of the demo display become very interesting to the player.

The female characters “Gloria” and “Sandra”, without partners to make up the best couples shown in FIG. 9, are supposed to pass by themselves during the demo display. That the female characters “Gloria” and “Sandra” pass by themselves implies a very low probability of a jackpot, which the player does not want.

For those players who become aware that the demo display is implying important information about the game, additional pleasure is provided to seek more advantageous information. For example, in FIG. 16-D5, the train design 58 passes through the background during the demo display, and in FIG. 16-D6, a dog design 59 appears in front of the background during the demo display. Since the train design 58 and the dog design 59

correspond to a jackpot probability of 100%, as described above, additional fun of play, namely the player's discovery of that information, is added.

As for beginners, if they become aware at an early stage that the demo display is suggesting important information on the game, they can face the game with adequate  
5 knowledge of the production display without acquiring much experience.

The above demo display on the liquid display device 3 may be alternatively arranged to be shown at specific time intervals when no game is played on the liquid display device 3, or on demand by the player. Further alternatively, the demo display may be started when no game is being played on the liquid display device 3, continuously for a specific period of  
10 time, namely when the symbol variation is not made continuously for a specific period of time, and the demo display is finished upon starting of the game on the liquid display device 3.

FIG. 17 is a block diagram of an electrical circuit part of a pachinko game machine according to an embodiment of the invention.

15 As shown in FIG. 17, the electrical circuit part includes a main circuit board 30, a relay circuit board 34, a symbol control circuit board 31, a voice control circuit board 32, and a prize ball control circuit board 33.

The main circuit board 30 includes a microcomputer with a central processing unit (CPU), a read-only memory (ROM), and a random access memory (RAM), a readable and writable  
20 memory means.

The main circuit board 30 is connected to the relay circuit board 34 to which are connected the following components: a passage ball sensor 20 as a game ball detecting means for detecting game balls passing through the passage ball gates 6a and 6b, described before; a start win ball sensor 22 for detecting balls entering the start win hole 4, described  
25 before; a big win ball sensor 25 for detecting balls entering the big win device 5, described before; a win ball sensor 21 for detecting balls entering the general win holes 13a, 13b, 13c, 13d, 13e, and 13f; an ejected ball sensor 23 for detecting balls ejected from a ball ejector (not shown); and a return ball sensor 24 for detecting balls ejected but returned without reaching the game board. To the relay circuit board 34 are further connected actuators, an LED  
30 display device 2, a lamp display device 41 for connection to board side lamps 14a and 14b,

the start win hole 4, and the big win device 5.

When these sensors detect balls, their detection signals are input to the CPU in the main circuit board 30 to operate and control the respective actuators according to the input signals. Control orders are also transmitted to the symbol control circuit board 31, to the voice  
5 control circuit board 32, and to the prize ball control circuit board 33.

When a game is being played, if the passage ball sensor 20 detects a game ball passing through the passage ball gates 6a or 6b, and a detection signal is output, the microcomputer in the main circuit board 30 determines that a win has occurred in response to the detection signal, and controls the display on the LED display device 2 according to the determination.

10 When the start win sensor 22 detects a ball entering the start win hole 4 and outputs a detection signal, the microcomputer in the main circuit board 30 transmits a control signal to the symbol control circuit board 31 to carry out various settings for the game on the liquid display device 3 according to the detection signal, and controls the liquid display device 3 according to the determination made at the symbol control circuit board 31. Here, the symbol  
15 control circuit board 31 comprises, separately from the main circuit board, a CPU, a ROM, and a RAM. Control programs for the game played on the liquid display device 3 and graphic data necessary for the game are stored in the ROM in the symbol control circuit board 31.

Based on the detection of the game ball with the start win sensor 22, the microcomputer in the main circuit board 30 makes a determination as to whether the game has produced a  
20 jackpot. When the determination is a jackpot, the big win device 5 is converted to the open state with the doors of the big win device 5 opened to facilitate entry of the game balls.

The voice control circuit board 32 includes various voice data and produces voices with the speaker 40 according to control orders transmitted from the main circuit board 30.

The prize ball control circuit board 33 operates a prize ball device 43 according to control  
25 orders transmitted from the main circuit board 30 according to each type of win, and dispenses game balls.

The control process for the games played with the liquid crystal display device 3 using the main circuit board 30 and the symbol control circuit board 31 is described below in reference to the flowcharts shown in FIGs. 18 to 24.

30 The game control process shown in FIGs. 18 to 24 is performed by the main circuit board



30.

With the main circuit board 30, a main game control process (ST1 to ST7) shown in FIG. 18 is repeated and also periodical interruption process (ST10 to ST20), as shown in FIG. 19, is performed at specific time intervals (for example, every three milliseconds) if an

5 interruption permitting flag is set.

The flow of the main game control process shown in FIG. 18 is described below:

ST1: Set an interruption permitting flag.

ST2: Renew the random number counter for the stop symbol determination and the random number counter for the Reach determination.

10 The stop symbol determination random number counter extracts stop symbol determination random numbers used to determine the stop arrangement with the liquid crystal display device 3 when a miss is determined in the jackpot determination, and renews count values within the range of 0 to 11 shown in FIG. 25. The renewal process is arranged to start from 0, increasing by 1 up to the upper limit value of 11 (hereafter called 'count-up') and again starts counting up from 0. The stop symbol determination random number counter includes three counters: a left stop symbol determination random number counter, a middle stop symbol determination random number counter, and a right stop symbol determination random number counter, to perform the renewal process individually.

20 The Reach judgment random number counter extracts the Reach determination random numbers used to determine whether or not the varying display of the special symbols has attained the Reach state in the case of a miss, and renews count values within the range of 0 to 9 shown in FIG. 25. That is, the renewal process is arranged to count from 0 up to the upper limit value of 9, and again up from 0.

25 ST3: Determine if a control command for the error check process is being transmitted. If yes, return to step ST1; if no, go to ST4.

ST4: Generate a command for an error check process.

ST5: Perform an error check according to the command generated in ST4.

ST6: Determine if an error is occurring. If yes, return to ST1. If no, go to ST7.

30 ST7: Perform the special symbol game control process shown in FIGs. 20 and 21, described later. As described before, periodic interruption occurs according to the process

flow of ST10 to ST20 shown in FIG. 19.

ST10: Retract all the registers.

ST11: Perform renewal process with the jackpot determination random number counter, the jackpot symbol determining random number counter, and the production group  
5 determining random number counter.

The jackpot determination random number counter is for extracting the jackpot determination random numbers used to determine whether the game result with the liquid crystal display device 3 is to be a jackpot (jackpot determination) in which the same special symbols appear, and renews count values within the range of 0 to 334 shown in FIG. 25. That  
10 is, the renewal process is arranged to count from 0 up to the upper limit value of 334, and again up from 0.

The jackpot symbol determining random number counter extracts the jackpot symbol determining random numbers used to determine the stop arrangement with the liquid crystal display device 3 when the jackpot determination results in a jackpot, and renews count  
15 values within the range of 0 to 11 shown in FIG. 25. That is, the renewal process is arranged to count from 0 up to the upper limit value of 11, and again up from 0.

The production group determining random number counter extracts the production group determining random numbers used to determine the production group, described later, and renews count values within the range of 0 to 1023 shown in FIG. 25. That is, the renewal  
20 process is arranged to count from 0 up to the upper limit value of 1023, and again up from 0.

ST12: Perform renewal process with each timer.

ST13: Upon detecting input signals from various sensors, such as the passage ball sensor 20, the win ball sensor 21, and the start win ball sensor 22, perform processes according to the input signals. For example, when an input signal from the start win ball sensor 22 is  
25 detected, a determination is made as to whether the start win memory number is less than the upper limit value (above-mentioned four). If the start win memory number is below the upper limit value, the count value is renewed respectively with the jackpot determination random number counter, and the jackpot symbol determining random number counter and the production group determining random number counter are extracted as the random  
30 numbers and transferred to and stored in the RAM of the main circuit board 30.

ST14: Perform a process related to the display with the LED display device 2 (this is called “ordinary symbol process”). In this ordinary symbol process, a win determination is made with the LED display device 2 and a display control of the LED display device 2, based on the determination result is made.

5 ST15: Perform decoration control process of turning on, off, and flashing various LEDs according to the game state.

ST16: Perform prize ball dispensing process in response to requests for dispensing requested as a result of game balls entering the win hole.

10 ST17: Perform an error determination process if various errors have occurred in the game machine.

ST18: Perform the process of transmitting control commands to the symbol control circuit board 31, etc.

ST19: Reset each register.

ST20: Set an interruption permitting flag.

15 As shown in FIG. 20, a special symbol game control process determines whether any startup prize is stored (ST30). When it is determined that any startup prize is not stored, the following processes are performed.

A demonstration display switching timer for governing switching timing between the demonstration display in the liquid crystal display device 3 and the game in the varying display of special symbols (hereinafter referred as “ordinary game”), counts a predetermined time duration to determine if an order to switch to the demonstration display is output (ST31). If it is determined to output the switching order, then it is determined whether the demonstration display is in display state (ST32). If the demonstration display is in display state, the process switches the state to the ordinary game (ST33) and if in the ordinary game state, then changes to the demonstration display (ST34).

20

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If it is determined at ST30 that a memory of the startup prize is stored, then the following processes are performed.

The random number for jackpot determination, which is stored in RAM at ST13, is read, and it is then determined whether the state is to be a jackpot or not, using a jackpot determination table stored in a ROM, as shown in FIG.27 (ST35). If the random number read

30

for jackpot determination is “7”, it is determined that it is a jackpot.

When the jackpot determination is made at ST35, the random number for jackpot symbol determination, which is stored in RAM at ST13, is read, and the jackpot symbol is determined from the jackpot symbol determination table stored in the ROM, as shown in  
5 FIG.27 (ST41). As shown in this FIG.27, in the embodiment described, twelve types of special symbols are provided. The jackpot is a stop arrangement in which three of each special symbol are aligned. The data of these symbols are in turn stored in a ROM in the symbol control circuit board 31.

When the jackpot symbol is determined, a production group determination table for  
10 jackpot (FIG. 28C) is selected from three production group determination tables stored in the ROM, as shown in FIG. 28, and the random number for production group determination, which is stored in the RAM at ST13, is used to determine the production group required to determine the production display (ST42).

When the determination of a miss is made at ST35, the random number for Reach  
15 determination, which is stored in the RAM at ST13, is read, and it is determined whether the Reach state is to be shown (whether the varying display is to be switched to the pre-jackpot state), using the Reach determination table stored in the ROM, as shown in FIG. 29 (ST36).

When the Reach determination is made at ST36, the random numbers for left side stop  
20 symbol determination, central stop symbol determination and right side stop symbol determination, which are stored in the RAM at ST13, are read, and the stop arrangement of the special symbol is determined from a left side stop symbol determination table, central stop symbol determination table, and right side stop symbol determination table (ST39). In this determination process, the left side stop symbol is firstly determined and the same symbol is then determined for the right side stop symbol. If the symbol determined from a  
25 random number for the central stop symbol determination is identical to the left side and right side stop symbols, the central stop symbol is changed to one fed by one frame.

If a stop arrangement of a miss after attaining a Reach state is determined, then a  
production group determination table (FIG. 28B) for misses after attaining a Reach is selected, as shown in Fig. 28, and the random number for production group determination,  
30 which is stored in the RAM at ST13, is used to determine the production group (ST40).

If the determination of a miss without attaining a Reach state is provided at ST36, as is the case with ST39, the random numbers for left side stop symbol determination, central stop symbol determination and right side stop symbol determination, which are stored in the RAM at ST13, are read to determine the stop symbol. Different from the determination process in ST39, the left side and the central stop symbols are firstly determined from random numbers for left side and central stop symbol determinations. If the right side stop symbol determined from a random number for the right side stop symbol determination is identical to the left side stop symbol, the right side stop symbol is changed to one fed by one frame (ST37).

If a stop arrangement indicating a miss without attaining a Reach state is determined, then a production group determination table (FIG. 28A) for misses without attaining a Reach state is selected, as shown in Fig. 28 and the random number for production group determination, which is stored in the RAM at ST13, is used to determine the production group (ST38).

As described above, when the stop arrangement of a special symbol is determined, a symbol variation command is generated to control the liquid crystal device for displaying, on the basis of the determination (ST43), and then the symbol variation command is transmitted to the symbol control circuit board 31 (ST44).

Now, entering the flow chart in FIG. 21, it is determined whether a jackpot is provided (ST45). If determined to be a miss, the process goes to ST53, described hereinafter in detail.

If determined to be a jackpot, then a jackpot fanfare process is performed to control the sound control circuit board 32 for outputting sound (the jackpot fanfare) which is generated through a loudspeaker 40 to give notice of the jackpot (ST46).

Then, a round display-switching timer for governing the timing when an ordinary game state is changed to a round display of a jackpot state with the liquid crystal display device 3, and counts a predetermined time duration to switch the ordinary game to the round display (ST47).

A jackpot game time check process for governing the execution time (30 sec) for one round of a jackpot at a big prize hole 5 and for governing the latency for switching of the round display is performed (ST48). As a result of the check process, if the lapse of the execution time duration of one round of the jackpot state is verified, the flapper of the big

prize hole 5 is closed. If the lapse of the latency for the switching of the jackpot state is verified, then the flapper of the big prize hole 5 is opened (ST49).

Following ST49, it is determined whether the big prize hole 5 is being opened (ST50). When it is opened, the process returns to ST48 process to continue the jackpot state. When it is not opened, the process determines whether the V win described before is established (ST51). If the V win is established, then the process returns to ST48 process to continue the jackpot state. If the V win is not established, then the bit hit state is completed (ST52).

Then, the working area of the RAM, which has been used for the special symbol game control process, is reset (ST53).

FIG. 22 is a flow chart showing a main process performed by the special symbol control circuit board 31.

The count value of the random number counter for extracting a random number for production pattern determination, which is used for determining the production pattern of a production display described hereinafter is renewed in a range between 0 and 127, as shown in FIG. 25 (ST60).

Then, it is determined whether a symbol variation command is received from the main circuit board 30 (ST61). If the symbol variation command is received, a command receipt flag is set (ST62).

And, it is determined whether it is in error state (ST63). If there is no error state, image processing is performed (ST64).

Referring to a flow chart in FIG. 23, the image processing is described.

If in jackpot state ("YES" at ST70), then it is determined at ST62 whether the command receipt flag is set (ST71). If not set, the round display is kept in the display state (ST74). If the command receipt flag is set, then an image to be displayed in the round display is set (ST72) according to the symbol variation command received from the main circuit board 30. After canceling the command receipt flag (ST73), the round display process is performed according the setting (ST74).

If in demonstration display state ("YES" at ST75), then it is determined whether the command receipt flag is set (ST76). If not set, the demonstration display is kept in the display state (ST79). If the command receipt flag is set, then an image to be displayed in the

demonstration display is set (ST77) according to the symbol variation command received from the main circuit board 30. After canceling the command receipt flag (ST78), the demonstration display process is performed according the setting (ST79).

If in an ordinary game state (“YES” at ST80), then it is determined whether the command receipt flag is set (ST81). If not set, the varying display and production display are kept to be in the display state (ST84). If the command receipt flag is set, then the varying display related setting for the special symbol in the ordinary game (ST82) and the production pattern determination process (ST83) are performed according to the symbol variation command received from the main circuit board 30. After canceling the command receipt flag (ST84), the ordinary game process (display process for the varying display and production display) is performed (ST85).

Referring to a flow chart in FIG. 24, a production pattern determination process performed at ST83 is described.

Based on the production group determined at ST38, ST40, and ST42 and contained in the symbol variation command received from the main circuit board 30, one of the production pattern determination tables in FIG. 31 through FIG. 36 is selected to determine the production pattern to be displayed as a production display.

If the production group 0 is selected (“YES” at ST86), in other words, in the state of a miss without attaining a Reach, as shown in FIG. 28, a production pattern determination table (1) for misses without attaining a Reach in FIG. 31 and a production pattern determination table (2) for misses without attaining a Reach in FIG. 32 are selected. Then, the count value of the random number counter for production pattern determination, which is renewed at ST60, is extracted as the random number for production pattern determination. The production pattern is allocated with a range of random numbers, in which the random number is included, as a production pattern to be displayed (ST87).

If the production group 0 is not selected and one of the production groups 1 to 20 is selected (“YES” at ST88), in other words, in the state of a miss after attaining a Reach, as shown in FIG. 28, a production pattern determination table (1) for misses after attaining a Reach in FIG. 33 and a production pattern determination table (2) for misses after attaining a Reach in FIG. 34 are selected. Then the count value of the random number counter for

production pattern determination, which is renewed at ST60, is extracted as the random number for production pattern determination. The random number is used to determine the production pattern allocated with a range of random numbers in which the random number is included, as a production pattern to be displayed (ST89).

5 If one of the production groups other than 0 to 20, or the production groups 21 to 37 is selected ("NO" at ST88), in other words, in the state of a jackpot, as shown in FIG. 28, a production pattern determination table (1) for jackpot in FIG. 35 and a production pattern determination table (2) for jackpot in FIG. 36 are selected. Then the count value of the random number counter for production pattern determination, which is renewed at ST60, is  
10 extracted as the random number for production pattern determination. The random number is used to determine the production pattern allocated with a range of random numbers in which the random number is included, as a pattern to be displayed (ST90).

As shown in FIG. 31 through FIG. 36, in the embodiment 252 types of pattern are provided as the production pattern, and those patterns are stored in the ROM within the  
15 symbol control circuit board. In these various production patterns, appearing characters, expressions of the characters, true intention designs, words, backgrounds, words upon entering a Reach state and types of Reach are previously set and a variety of scenarios are configured by combining them with each other.

Now, F1 - F4 in FIGs. 31 to 36 represent expressions of respective characters, practical  
20 forms of which are shown in FIG. 37 and FIG. 38. FIG. 37 shows varied expression types of male characters and FIG. 38 shows varied expression types of female characters. H1 - H20 represent true intention designs of respective characters, practical forms of which are shown in FIG. 12.

Also, as the display means, a display apparatus configured of an array of a number of  
25 LEDs, a CRT, a plasma display device, and electro-luminescent device or the like may be used, as well as a liquid crystal display device.

Although the embodiments described are applied to a pachinko game machine, this invention may be also applied to other game machines, such as one including an electrical display device or any imaging device. The player can enjoy the game in a home game  
30 machine, using a game program performing pseudo-operations of the pachinko game



machine described above. It is also possible to install the program from the recording medium to a general-purpose personal computer, for example, and to utilize the personal computer as a game machine.

Also, the special game state may correspond to a large release of coins (or tokens) in a slot machine.

#### Industrial Applicability

A game machine making it possible for a player to reliably learn game evolution such as a jackpot, a Reach evolution, and a miss even without watching variation-displayed special symbols, by simply watching production displays provided. Furthermore, a game machine making it possible for a player to grasp production contents without depriving the player of the pleasure of finding a specific production display of information beneficial to the player is also provided.